

**SEMICONDUCTOR MEMORY CELL AND MEMORY ARRAY USING A  
BREAKDOWN PHENOMENA IN AN ULTRA-THIN DIELECTRIC**

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Abstract of the Disclosure

A semiconductor memory cell having a data storage element constructed around an ultra-thin dielectric, such as a gate oxide, is used to store information by stressing the ultra-thin dielectric into breakdown (soft or hard breakdown) to set the leakage current level of the memory cell. The memory cell is read by sensing the current drawn by the cell. A suitable ultra-thin dielectric is high quality gate oxide of about 50 Å thickness or less, as commonly available from presently available advanced CMOS logic processes.

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